

~~MINOV, Dmitriy Konstantinovich~~; SHTERTSER, O.N., kand.tekhn.nauk, dotsent,
retsensent; KOSAREV, G.V., kand.tekhn.nauk, dotsent, retsensent;
PTITSYN, G.V., red.; BORUNOV, N.I., tekhn.red.

[Mechanical aspects of electric rolling stock] Mekhanicheskaya
chast' elektricheskogo podvizhnogo sostava; ustroistvo, teoriya,
proektirovaniye. Moskva, Gos.energ.isd-vo, 1959. 381 p.
(MIRA 12:9)

1. Leningradskiy politekhnicheskiy institut (for Shtertser).
2. Moskovskiy energeticheskiy institut im. Molotova (for Kosarev).
(Electric railroads--Rolling stock) (Streetcars)
(Trolleybuses)

MINOV, D.K.; GOLOVANOVA, V.A.

Semiconductor power rectifiers and prospects for their use in
electric traction devices. Vop.elek.shel.dor. no.1:49-74
'59. (MIRA 12:8)

(Electric railroads--Equipment and supplies)
(Electric current rectifiers)

M. N. V. D. K.

8(0)
AUTHORS: Chilikin, M. G., Tikhonov, S. S., Trofimov, A. N., Ivanov, I. V.,
Bosenfel'd, V. Ye., Minov, S. A., Metel', V. B. SOV/105-59-12-21/25

TITLE: Professor I. S. Yefremov, On His 50th Birthday

PERIODICAL: Elektricheskoe, 1959, Nr 12, p 83 (USSR)

ABSTRACT: Ivan Semenovich Yefremov was born in July 1909. In 1935 he graduated from the fakul'tet elektrifikatsii (Department of Electrification) of the Moskovskiy elektromekhanicheskii institut inzhenerov sheniennodorozhnogo transporta (Moscow Electromechanical Institute for Railroad Engineers). He is working since then at the Trolley Administration of Moscow, where he became plant manager, after being foreman and chief engineer. He takes part in the scientific work of the research laboratory of the gorodskoy elektricheskoy transport Akademii kommunal'nogo khozyaystva (Municipal Electrical Transportation of the Academy of Communal Economy). In 1946 he graduated as Candidate of Technical Sciences, in 1949 he was elected the chief of the kafedra elektricheskoy tyagi i podvishnogo sostava Moskovskogo avtodorozhnogo instituta (Chair of Electrical Traction and Vehicles of the Moscow Institute of Highways).
Card 1/2

In March 1956 he became head of the kafedra elektricheskogo transporta of the Moskovskiy energeticheskii institut (Chair of Electrical Transportation of the Moscow Institute of Power Engineering). He still holds this position. In April 1959 he became dean of the fakul'tet elektrifikatsii promyshlennosti i transporta MEI (Department of Electrification of the Industry and Transportation at the Moscow Institute of Power Engineering). In 1954 he graduated as Doctor of Technical Sciences and became Professor. Since 5 years he is a member of the ekspertnaya komissiya VAK (Expert Commission of the VAK) and the Nauchno-tekhnicheskii sovet Ministerstva kommunal'nogo khozyaystva RSFSR (Scientific-technical Council at the Ministry for Communal Economy of the RSFSR). He has the order "Patriotic War 1st Class" and several other medals. There is 1 figure.

Card 2/2

MINOV, D.K., prof., doktor tekhn.nauk; PETROV, B.P., kand.tekhn.nauk

Automatic control of electric locomotives. Zhel.dor.transp.
42 no.5:14-17 My '60. (MIRA 13:9)
(Electric locomotives) (Automatic control)

PETROV, Boris Petrovich; STEPANOV, Aleksandr Dmitriyevich; MINOV, D.K., prof., retsenzent; DAVYDOV, M.A., dots., retsenzent; KOSAREV, G.V., dots., retsenzent; TRAKHTMAN, L.M., dots., retsenzent; SIDOROV, N.I., red.; LARIONOV, G.Ye., tekhn. red.

[Electrical equipment and automation of electric rolling stock] Elektricheskoe oborudovanie i avtomatizatsiya elektricheskogo podvizhnogo sostava. Izd.2., perer. i dop. Moskva, Gosenergoizdat, 1963. 303 p. (MIRA 17:3)

TULUPOV, V.D., kand. tekhn. nauk; BARANOV, B.K., inzh.;
MINOV, D.K., doktor tekhn. nauk

Optimum automatic control system for regulating the traction
power of rectifier locomotives. Elektrotehnika 34 no.11:30-
35 N '63. (MIRA 17:2)

YEFREMOV, I.S.; MINOV, D.K.; PETROV, I.I.; ROZENFELD, V.Ye.; SVENCHANSKIY,
A.D.; SOKOLOV, M.M.; PUFRIANSKIY, N.A.; CHILIKIN, M.G.

Aleksandr Dmitrievich Stepanov, 1904- ; on his 60th birthday.
Elektrichestvo no.9:93 S '64.

(MIRA 17:10)

MINOV, Dmitriy Konstantinovich, prof. doktor tekhn. nauk;
FAMINSKIY, G.V., kand. tekhn. nauk, retsenzent;
KHLEBNIKOV, V.H., kand. tekhn. nauk, red.

[Increasing the tractional characteristics of electric locomotives and diesel locomotives with electrical transmission systems] Povyshenie tiagovykh svoistv elektrovozov i teplovozov s elektricheskoi peredachei. Moskva, Transport, 1965. 266 p. (MIRA 18:8)

MINOV, V.A. (Minsk)

A yard became a garden. Zdorov'e 3 no.3:13 Mr '57 (MLBA 10:4)
(GARDENING)

MIHOVIC, R. I. FRANCESKI, R.

The 3-T47 tank turret with the 11-C-11 corrector of electric power. p. 496.
(GLASNIK, Vol. 5, No. 7, July 1957)

SO: Monthly List of East European Accessions (EEAL) LC Vol. 6, No. 12, Dec. 1957
Uncl.

MINOVIC, Miloje, inž., saradnik (Novi Beograd, Soliter D-11)

Thermobimetallic compounds and their application. Tehnika Jug:
Suppl.: Elektrotehnika 12 no.3:517-528a Mr '63.

1. Institut "Nikola Tesla", Beograd.

MINOVIC, Miloje, inz. (Beograd, Soliter D-11, stan 105)

Driving power and mechanism of electric apparatus. Tehnika Jug 18 no. 6:Suppl:Elektrotehnika 12 no.6:1100-1111 Je '63.

1. Rukovodilac razvoja fabrike niskonaponske opreme preduzeca "Elektro-srbija", Beograd.

MINOVICH, A.

Fruitful search. Prof.-tekh. obr. 21 no.6:23-24 Je '64. (MIRA 17:9)

1. Starshiy bukhgalter Professional'no-tehnicheskogo uchilisha No. 14, Moskva.

MIN'OVICH, K. G.

PA 12/49T91

USSR/Medicine - Vaccine Therapy
Medicine - Typhoid, Vaccine

May 48

"Prophylactic Inoculations for the Control of
Infectious Diseases," K. G. Min'ovich, Cand Med
Sci, 3½ pp

"Fel'dsher i Akusherka" No 5

Describes method of injection, local and general
reactions, vaccine, anavaccine, di- tri- tetra-
and polyvaccines, personnel who should be inocu-
lated against typhoid, type of antityphoid vaccines.
To be concluded.

12/49T91

MIN'OVICH, K. G.

FA 16/49T65

USSR/Medicine - Disease, Transmission
Medicine - Inoculation

Jun 48

"Prophylactic Injections as a Means of Controlling
Infectious Diseases. Preventative Inoculations
Against Various Diseases," K. G. Min'ovich, Cand
Med Sci, 4 pp

"Tel'dsher 1 Akusherka" No 6

Describes immunization against smallpox, diphtheria,
scarlet fever, and measles.

16/49T65

NOSOV, V.A., kand. tekhn. nauk; DYACHENKO, M.A.; SOSENKO, A.P.; MINOVSKIY, A.I.

Ultrasonic meter of alkali concentration. Avtom. i prib.
no.4:64-68 O-D '63. (MIRA 16:12)

1. Institut avtomatiki Gosplana UkrSSR.

MINOVSKIY, P.P.

New automatic devices for mining enterprises. Gor. zhur. no.4:54-59
Ap '60. (MIRA 14:6)

1. Glavnyy konstruktor zavoda TSvetmetpribor (g. Nal'chik).
(Mineral industries)
(Automatic control)

MINSBARG, Ts. Ya.

Cases of Breslau salmonella infection in children. Zdravookhranenie
2 no.1:63-64 Ja-F '59. (MIRA 12:7)

1. Iz 3-y infektsionnoy bol'nitsy g. Kishineva (glavnyy vrach -
Z.P. Kiseleva) i kafedry infektsionnykh bolezney (zav. -dotsent
I. R. Drobinskiy) Kishinevskogo meditsinskogo instituta.
(INTESTINES--BACTERIOLOGY) (SALMONELLA TYPHIMURIUM)

MINSBARG, TS.Ya.

Treatment of patients suffering from salmonellosis caused by
Bacillus breslau. Trudy Kish.gos.med.inst. 13:105-108 '60.
(MIRA 16:2)

1. Kafedra infektsionnykh bolezney Kishinevskogo gosudarstvennogo
meditsinskogo instituta.
(SALMONELLA INFECTIONS) (PHARMACOLOGY)

RAKHAL'SKIY, Yu.Ye., MINSBERG, V.M.

Alcoholism and hypertension. Vrach.delo no.9:939-941 S'58
(MIRA 11:10)

1. Kafedra psikhatrii (zav. - prof. A.N. Molokhov) Kishinevskogo
meditsinskogo instituta.

(ALCOHOLISM)

(HYPERTENSION)

MINSEK, D.

The forest as a general economic problem of Predmurje. p. 171.
NOVA PROIZVODNJA. Ljubljana.
Vol. 6, no. 3, Aug. 1955

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 2,
February 1956

MIN'SHIKOV, I.

The three-year plan of cultural improvement in operation. Sov.
profsoiuzy 17 no.7:29-30 Ap '61. (MIRA 14:3)

1. Predsedatel' pravleniya kluba " Zaporozhstal'."
(Zaporozh'ye--Iron and steelworkers--Education and training)
(Trade unions)

MYSHKIS, A.D.
MYSHKIS, A.D. (Khar'kov); MINSK, A.Ya. (Minsk).

Defining generalized functions. Mat. sbor. 43 no.3:323-348 N '57.
(Functions) (MIRA 11:2)

L 34882-66 EWT(m)/EWP(t)/ETI IJP(c) RLW/JD/GD

ACC NR: AT6013544

(A)

SOURCE CODE: UR/0000/65/000/000/0111/0114

AUTHOR: Yudelevich, I. G.; Shelpakova, I. R.; Avseyko, Ye. M.; Minskaya, L. N.;
Larina, L. K.; Chalkova, N. Ya.; Sosnovskaya, T. I.; Zaks, I. V.; Khamidulina, F. K.

ORG: None

TITLE: Spectrographic determination of trace elements in the raw materials and intermediate products of the rare metals industry

SOURCE: Ural'skoye soveshchaniye po spektroskopii, 4th, Sverdlovsk, 1963. Materialy. Moscow, Izd-vo Metallurgiya, 1965, 111-114

TOPIC TAGS: spectrum determination, zinc, lead, indium, thallium, germanium, selenium, tellurium, spectrographic analysis

ABSTRACT: A number of new methods are described for determination of indium, thallium, germanium, selenium and tellurium in intermediate products of the lead and zinc industry. Germanium is spectrographically determined by injection of powder specimens into an a-c arc discharge. The spectroscopic buffer for determination of more than 0.001% Ge is carbon powder containing 5% Bi(NO₃)₃ as an internal standard. The analytical line pair is Ge 269.13 mμ-Bi 280.96 mμ. For determining higher concentrations of germanium (above 0.1%), use is made of the Ge 258.91 mμ-Bi 280.96 mμ or Ge 274.04 mμ-Bi 280.96 mμ line. A buffer consisting of a mixture of quartz and sulfur

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L 34882-66

ACC NR: AT6013544

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was used for determining traces of germanium of the order of 1 part in 100,000 in slags and mattes. The sensitivity of germanium determination with respect to the Ge 303.90 mμ line is 10⁻⁴% in this case with a relative error of about 15%. Commercial solutions are analyzed by electrode saturation. The relative mean square error is 9% with this method. Indium, thallium, gallium, and germanium are simultaneously determined by pouring the solutions to be analyzed into a socket in a special copper electrode and then drying the electrode so that the solution adheres to the surface. The advantage of this method over the saturation of carbon electrodes lies in the possibility of using the sensitive long-wave lines located in the region of cyanogen bands: In 410.18 mμ, Ga 417.2 mμ and Tl 377.57 mμ. This method gives a relative error of 9%. Methods are discussed for determination of rare elements in zinc and lead ores with a sensitivity of at least 10⁻⁴% using spectrographic analysis with a buffer solution of sodium fluoride. Orig. art. has: 1 figure.

SUB CODE://,20/ SUBM DATE: 06Jul65/ ORIG REF: 005/ OTH REF: 000

Card 2/2 *dt*

KIBRIK, P.S., MINSKAYA, M. I., YANUTSEVICH, F.P.,
Engs.

Peat

Testing railroad power plant M-2, 5. Elek.
sta. 23 no. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

VINNIK, L.A., kand.med.nauk; VISHNEVETSKIY, F.Ye.; MINSKAYA, N.M.; PESCHANSKIY, V.S.

Effect of phthivazid on the cardiovascular system in tuberculosis.
Vrach. delo no.1:95-96 '59. (MIRA 12:4)

1. Kafedra fakul'tetskoy terapii (zav. - prof. D.G. Oystakh) i
kafedra patologicheskoy anatomii (zav. - prof. M.S. Brunshteyn)
Astrakhanskogo meditsinskogo instituta.
(ISONICOTINIC ACID) (CARDIOVASCULAR SYSTEM)

BATURIN, V.V., glav. red.; BRIUKHANOV, V.N., red.; TSIKKEL', L.M.,
red. VOSKRESENSKIY, Ye.N., red.; IL'INA, N.S., red.;
LEONOV, B.N., red.; LUNGERSGAUZIN, G.F., red.; MIRSEYVA,
V.M., red.; MORALEV, V.N., red.; RAKOVETS, O.A., red.

[Methods for the interpretation of the materials of aerial
photography in geological studies; materials] Metody de-
shifirovaniia aerofotomaterialov pri geologicheskikh is-
sledovaniyakh; materialy. Glav. red. V.V.Baturin, V.N.
Briukhanov, L.M.Tsikkel'. Moskva, Izd-vo "Nedra," 1964.
150 p. (MIRA 17:7)

1. Vsesoyuznyy seminar po geologicheskomu deshifirovaniyu
pri geologicheskikh issledovaniyakh, Moscow, 1961.

MINSKAYA, Yu.I., assistant

Liver function in rheumatic fever patients following treatment with
salicylate. Sbor. trud. Kursk. gos. med. inst. nb.13:399-401 '58.
(MIRA 14:3)

1. Iz kliniki gosital'noy terapii (pav. - dotsent I.G.Chernetsov)
Kurskogo gosudarstvennogo meditsinskogo instituta.
(LIVER) (RHEUMATIC FEVER)
(SODIUM SALICYLATE)

MINSKAYA, Yu.I., kand.med.nauk; GRYUNBERG, A.Yu.

A case of primary atypical amyloidosis. Klin.med. 36 no.2:92-95
P '58. (MIRA 11:4)

1. Iz gosital'noy terapevticheskoy kliniki (zav. - dotsent I.G.
Chernetsov) i kafedry patologicheskoy anatomii (zav. - prof. A.S.
Brumberg) Kurskogo meditsinskogo instituta (dir. - prof. A.V.
Savel'yev)

(AMYLOIDOSIS, case reports
primary atypical (Rus))

MATOSYANTS, A.I., doktor med.nauk; MINSKAYA, Yu.I., kand.med.nauk;
LANDA, E.Ya. (Kurak)

Case of mesothelioma of the pericardium. Klin.med. 40 no.6:
126-129 Je '62. (MIRA 15:9)

1. Iz gospi'tal'noy terapevticheskoy kliniki (zav. - doktor med.
nauk A.I. Matosyants) i kafedry patologicheskoy anatomii (zav. -
prof. A.S. Brumberg) Kurskogo meditsinskogo instituta (dir. -
prof. A.V. Savel'yev).
(PERICARDIUM--TUMORS)

MINSKAYA, Yu.I., assistant [deceased]

Picture of peripheral blood in lymphogranulomatosis. Sbor,
trud. Kursk. gos. med. inst. no.16:256-260 '62.

(MIRA 17:9)

1. Iz gosital'noy terapevticheskoy kliniki (zav. - prof.
A.I. Matosyants) Kurskogo meditsinskogo instituta.

SHAPIRO, Yu.L.; MINSKER, E.I.; ORLOVSKAYA, D.D. (Moskva)

Dynamics of some indices of adrenal cortex function in prolonged complete starvation in man. Pat. fiziol. i eksp. terap. 7 no.3:70-71 My-Je'63 (MIRA 17:4)

1. Iz Instituta psikhiatrii (dir. - chlen-korrespondent AMN SSSR prof. A.V. Snezhnevskiy) AMN SSSR.

MINSKER, E.I.

Reactivity of some links of the endocrine system in various forms of the course of schizophrenia. Report No.1: Condition of the reactivity of the endocrine system in paranoid and nuclear forms of schizophrenia. Zhur. nevr. i psikh. 63 no.9:1388-1397 '63.
(MIRA 17:8)

1. Institut psikhiatrii AMN SSSR, Moskva.

ORLOVSKAYA, D.D.; GASKIN, L.Z.; DAVYDOVA, I.B.; MINSKER, E.I.

Some characteristics of the biological (stress) action of blood serum from patients with various schizophrenia forms. Zhur. nevr. i psikh. 64 no.9:1396-1407 '64. (MIRA 17:12)

1. Laboratoriya obshchey patofiziologii (zaveduyushchiy M.Ye. Vartanyan) Instituta psikhatrii AMN SSSR, Moskva.

L 31097-66

ACC NR: AP6022782

SOURCE CODE: UR/0301/66/012/002/0150/0154

AUTHOR: Davydova, I. B.; Minsker, E. I.; Orlovskaya, D. D.

ORG: Institute of Psychiatry, AMN SSSR, Moscow (Institut psikiatrii AMN SSSR)

TITLE: Effect of the blood serum of schizophrenic patients on the catecholamine content in the brain tissue of animals

SOURCE: Voprosy meditsinskoy khimii, v. 12, no. 2, 1966, 150-154

TOPIC TAGS: blood serum, rabbit, man, psychopathology, adrenal gland, biologic secretion, brain, medical experiment

ABSTRACT: The purpose of this work was to study the effect of the blood serum of patients with different forms of schizophrenia on the adrenaline and noradrenalin content in individual structures of the rabbit brain at various times after its administration.

The noradrenaline content in the hypothalamus of rabbits is increased after the administration of the blood serum obtained from patients with periodic forms of schizophrenia and from patients with exacerbation of the paranoic form; the blood serum of healthy people and serum of patients with nuclear forms of schizophrenia do not raise the noradrenalin content.

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UDC: 616.831-008.944.53-02:616.895.8-018.5

L 31097-66

ACC NR: AP6022782

An increase in the adrenalin content in the hypothalamus of rabbits was observed after administering the blood serum not only of schizophrenic patients but also of healthy people.

A statistically significant increase in the noradrenalin content in the hypothalamus of rabbits was observed only after studying the brains of the animals 2½-3 hours after the introduction of blood serum; within 24 hours the increase either was statistically insignificant or could not be observed.

No statistically significant changes in the catecholamines could be observed in other structures of the brain after the administration of the blood serum obtained from schizophrenic patients or from healthy people. Orig. art. has: 4 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 01Sep64 / ORIG REF: 005 / OTH REF: 006

Card 2/2 *JS*

RAZYGRAYEV, Arkadiy Mikhaylovich [deceased]; YURASOV, A.I., kand.
tekhn. nauk, retsenzent; MINSKER, E.I., inzh., red.

[Structural synthesis of the electrical circuits of machine
tools] Structurnyi sintez elektroskhem metallovezhushchikh
stankov. Moskva, Energiia, 1964. 71 p. (Biblioteka po av-
tomatike, no.106) (MIRA 17:10)

MINSKER, Emmanuil Isaakovich; FEYGEL'MAN, V.M., red.

[Electrical control of automatic lines in the machinery industry] Elektricheskoe upravlenie avtomaticheskimi liniyami v mashinostroenii. Moskva, Izd-vo "Energia," 1964. 87 p. (MIRA 17:8)

MINSKER, Emmanuil Isaakovich; SOKOLOV, Nikolay Georgiyevich;
KAMINSKIY, Ye.A., red.; BORUNOV, N.I., tekhn. red.

[Electric wiring of metal-cutting machine tools]Elektricheskie provodki metalloreshushchikh stankov. Moskva, Gosenergoizdat, 1962. 63 p. (Biblioteka elektromontera, no.70)
(MIRA 16:1)

(Machines—Electric driving)

EXCERPTA MEDICA Sec 15 Vol.11/6 Chest June 56

MINSKER, F.B.

1497. CHANGES IN THE INCIDENCE OF ACTIVE TUBERCULOSIS IN THE TOWNS AND URBAN SETTLEMENTS OF THE BELORUSSIAN SSR (Russian text) - Minsker F. A. and Komar T. V. - ZDRAV. BELORUSSII 1956, 12 (42-43)

The graph of first notifications of active pulmonary tb for the period 1950-1955 shows a definite downward trend. Taking the number of primary notifications during the year 1950 as 100%, the incidence fell to 96.5% in 1951, 92.4% in 1952, 86.4% in 1953, 83.3% in 1954 and 63.8% in 1955. Thus during the period in question the number of primary notifications fell by about one-third. The number of cases of open tb of the lungs discovered for the first time during the same period (1950-1955) fell by 55.9% (100% in 1950, 87.5% in 1951, 80.2% in 1952, 67.8% in 1953, 63% in 1954 and 44.1% in 1955). At the same time the incidence of active tb of the bones and joints fell by 47.4%. The number of notifications of active tb in children of the 3-14 age group fell by 50% and that of the 14-17 age group re-registered by the dispensaries by 39.8%. This fall in the incidence of tb in children and young people was helped by anti-tuberculous vaccination and revaccination. (S)

MINSKER, F.A.

Republic conference and seminar of X-ray specialists working in the
antituberculosis service. Zdrav. Bel. 7 no. 2:68-69 F '61.

(MIRA 14:2)

(WHITE RUSSIA--TUBERCULOSIS--PREVENTION)
(LUNGS--RADIOGRAPHY)

VAYNER, M.I., TSIMBLER, Yu.A.; CHERNIKIN, V.I.; Prinimali uchastiye:
MAKOVSKIY, V.A., student-diplomnik; ZAKHAROV, G.I., student-
diplomnik; MINSKER, I.D.; OTROSHCHENKO, G.P.

Experimental investigation of the evaporation of gasoline from
a deepened reinforced concrete tank. Transp. i khran.nefti i
nefteprod. no. 3:23-28 '64. (MIRA 17:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'-
stvu magistral'nykh truboprovodov, Spetsial'noye konstruktorskoye
byuro "Transneft'avtomatika" i Moskovskiy ordena Trudovogo Krasnogo
Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni
akademika I.M.Gubkina. 2. Moskovskiy ordena Trudovogo Krasnogo
Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni
akademika I.M.Gubkina (for Makovskiy, Zakharov). 3. Vsesoyuznyy
nauchno-issledovatel'skiy institut po stroitel'stvu magistral'-
nykh truboprovodov (for Minsker, Otroshchenko).

GAL'PERIN, M.V. (Moskva); KOROTKEVICH, G.I. (Moskva); MINSKER, I.N. (Moskva);
RYBASOV, V.I. (Moskva)

Solution of problems in nonlinear mathematical programming with
one and multiple extremes using analog computers. Izv. AN SSSR.
Tekh. kib. no.4:81-90 J1-Ag '64. (MIRA 17:12)

ACCESSION NR: AP4044827

S/0280/64/000/004/0081/0090

AUTHOR: Gal'perin, M. V. (Moscow); Korotkevich, G. I. (Moscow); Minsker, I. N. (Moscow); Rybasov, V. I. (Moscow)

TITLE: Solving nonlinear mathematical programming problems having one or more extrema on analog computers

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 4, 1964, 81-90

TOPIC TAGS: computer programming, analog computer, nonlinear programming, mathematical programming, Pyne gradient method

ABSTRACT: The authors discuss Pyne's gradient method for analog computer solution of linear and convex programming problems from the standpoints of accuracy, speed and controllability. A monotonous convex function is considered, using a piecewise linear approximation, and an expression is derived for the time to solve a one-extremum programming problem using Pyne's method; the errors in the solution are also investigated. Using broad-band transistor amplifiers with a 100 ns time constant and 8-blocks having a 50 ns risetime, a linear or quadratic problem can be solved in less than 10 μ sec. Methods are next considered for reducing multiple-extremum problems to a finite set of one-extremum problems suitable for determinate solution (in contrast to the Monte Carlo approach). The block-diagram for solving the multiple extremum problem

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ACCESSION NR: AP4044827

is then discussed in detail. Limitations of the method are determined basically by the static accuracy of the function generator, the performance of diode nonlinearity units and the speed of the analog unit, which can solve, on the average, 5×10^4 one-extremum problems per second, typical times being 1-2 hours for an accuracy of 2% and 5 minutes for 3-4%. Thus, the method is useful for finding the type of rough global minimum which is adequate for many control problems. Orig. art. has: 3 figures and 42 formulas.

ASSOCIATION: none

SUBMITTED: 27 Nov 63

NO REF SOV: 004

ENCL: 00

SUB CODE: DP

OTHER: 003

Card

2/2

L 00620-67 ENT(d)/ENT(m)/ENP(k)/ENP(h)/ENP(v)/ENP(1) IJP(c) BC

ACC NR: AP6008516

SOURCE CODE: UR/0280/66/000/001/0031/0040

AUTHOR: Korchinskiy, A. V. (Moscow); Minsker, I. N. (Moscow); Talitskaya, Ye. A. (Moscow)

ORG: None

TITLE: The optimization of the couplings between sectors in chemical production

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 1, 1966, 31-40

TOPIC TAGS: chemical production, optimal control, dynamic programming

ABSTRACT: Large modern chemical production enterprises have a complex multibranched structure. The optimal control of such production is not restricted to the optimization of the separate technological processes and sectors, but should assure the coordinated operation of the branches of production. The present authors investigate a complex technological plant consisting of n interrelated sectors. Every sector is characterized by the following vector parameters: input x_i , output y_i , control action w_i , and uncontrolled action v_i . All four quantities are considered measurable. The authors specifically investigate the possibility of using the method of dynamic programming for solving the problem of the optimal control of complex multibranched production. Ammonia production and an oxygen station which obtains oxygen from the atmosphere are examples treated in detail to demonstrate the method. Orig. art. has: 13 figures and 30 formulas.

SUB CODE: 07,12/ SUBM DATE: 11Jul64/ ORIG REF: 001/ OTH REF: 003

Card 1/1 pb

MINSKER, ND-H-

ALFEROV, K.A.; ~~MINSKER, Kh.A.~~; VOROB'YEVA, Ye.G., inzhener, nauchnyy
redaktor; ~~ODOD, V.Ya.~~, redaktor; TOKER, A.M., tekhnicheskiy redaktor

[Building underground storage areas by the method of ground plastering]
Ustroistvo sasemlennykh khranilishch sposobom shtukaturki po gruntu.
Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1954. 18 p.
(Warehouses) (MLRA 8:3)

MINSKER, Kh., inzh.

Plastering inclined walls of underground storage structures.
Sel'. stroi. 9 no.3:13-14 My-Je '54. (MIRA 13:2)
(Plastering) (Farm produce--Storage)

MINSKER, Kh., inzhener; RAYKHMAN, S., inzhener.

Local binding materials. Stroitel' 2 no.7:24 J1 ' 56. (MIRA 10:1)
(Binding materials)

MINSKER, Kh., inzhener.

Grinding building materials in vibrating mills. Sel'.stroï.
11 no.12:23-25 D '56. (MLRA 10:2)

(Crushing machinery)

MINSKER, Kh., inzh.

Cementless binder for coarse porous concretes. Sel' stroi. 13
no.8:15-16 Ag '58. (MIRA 11:9)
(Binding materials) (Concrete blocks)

MINSKER, Kh.A., inzh.

~~Coarse porous concrete blocks made with cementless binders.~~
Stroi. mat. 5 no.6:35-36 Je '59. (MIRA 12:8)
(Concrete blocks)

MINSKER, G. S.

USSR/Organic Chemistry - Theoretical and General Questions on Organic Chemistry, E-1

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 769

Author: Razuvaev, G. A., Stupen, A. B., and Minsker, K. S.

Institution: None

Title: Oxidizing Action of Some Acyl Peroxides

Original

Periodical: Zh. obshch. khimii, 1956, Vol 26, No 2, 473-474

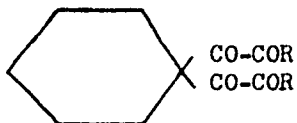
Abstract: The oxidizing action of benzoyl peroxide (I), acetyl benzoyl peroxide (II), and acetylated and benzoyleated derivatives of type III and IV has been investigated with reference to the evolution of I_2 from KI. A marked difference was found in the oxidation rate of I and II (3-5 minutes) and III and IV (20-100 hours). A mathematical expression is given for the oxidation rate of III and IV: $V = x/(a-bx)$, where V is the milliliters of 0.1 N $Na_2S_2O_3$ used in the titration, x is the time of titration from the start of the reaction in minutes, and a and b are constants which have different values for III and IV (for III at 22° a = 49.2, b = 0.0857). The rate of the initiating reaction is

Card 1/2

USSR/Organic Chemistry - Theoretical and General Questions on Organic Chemistry, E-1

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 769

Abstract: completely unrelated to the rate of the oxidizing action; this can be explained by the fact that different mechanisms apply to the 2 processes. Titration was carried out in ethylchloride solution acidified with glacial CH_3COOH .



III R = CH_2

IV R = C_2H_5

Card 2/2

Minsk, K. S.

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Oxidizing action of some acyl peroxides. G. A.
id. Razuvay, L. V. Stupen, and K. S. Minskier. J. Gen.
Chem. U.S.S.R. 26, 497-8 (1956) (Engl. translation).—See
C.A. 50, 12805e. R. M. B.

3

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APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001134420018-7"

RESEARCH
USSR/Chemistry of High-Molecular Substances, F

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1148

Author: Minsker, K. S., Shevlyakov, A. S., and Razuvayev, G. A.

Institution: None

Title: The Part Played by Oxygen in the Initial Stage of the Polymerization of Vinyl Chloride

Original

Periodical: Zh. obshch. khimii, 1956, Vol 26, No 4, 1082-1087

Abstract: During the polymerization of vinyl chloride (I), both pure and in the presence of initiators (benzoyl peroxide (II), azoisobutyl cyanide, acetylbenzoyl peroxide, 2,2-azo-bis-n-isobutylpropyl cyanide, methylamino-bis-diazo-p-anisole, and methylamino-bis-diazobenzene), an induction period is observed, the duration of which depends on the amount of O_2 present, as well as on the nature and concentration of the initiator. In pure I the induction period is considerably longer than in the presence of initiators. During the induction period the formation of peroxides has been established iodometrically. In the

Card. 1/2

USSR/Chemistry of High-Molecular Substances, F

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1148

Abstract: case of initiation polymerization the rate of peroxide formation is proportional to the square root of the initiator concentration and increases with increasing initiator efficiency (in the case of initiator II it was found that the peroxide concentration at the end of the induction period was 350% greater than at the beginning of the reaction). The activation energy of the over-all process of peroxide formation is 15.5 kcal/mole. The authors hold that the initiator forms a complex with I and proposed the following mechanism for the initial stage of the process in the presence of air: $RR + 2M \rightarrow 2RM$ (rate-determining step), $RM + O_2 \rightarrow RMO_2$. . . polyperoxide (1) (RR - initiator, M - monomer). Reaction (1) proceeds until the O_2 present in the system is completely used up and inhibits the polymerization.

Card 2/2

MINSK, A.D.

GEL'PERIN, I.I., kandidat tekhnicheskikh nauk; ~~MINSK~~, K.S.; PLOTKIN, Ye.R.

Using heat-elimination surfaces for controlling temperature in the
zone of catalysis. Khim. nauka i prom. 2 no.2:233-237 '57.
(Catalysis) (Heat--Transmission) (MIRA 10:6)

MINSKER, K.S.

57-9-29/40

AUTHOR: Gel'perin, I.I., Minsker, K.S.

TITLE: Determination of the Heat Exchange Surface if the Final Difference of Temperature Between the Heat Carrier and One of the Cooling Agents is Equal to Zero.
(Opredeleniye poverkhnosti teploobmena v sluchaye, kogda konechnaya raznost' temperatur teplonositelya i odnogo iz khladogentov ravna nulyu)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 9, pp. 2143 - 2148 (USSR)

ABSTRACT: The method described here makes it possible to determine the necessary heat exchange surface without having to ascertain the average logarithmic temperature drop. Countercurrent- and direct current heat exchange processes are investigated for the case that the final temperature drop between the heat carrier and one of the cooling agents is equal to zero. Equations are derived with the aid of which it is possible to determine the necessary length of heat exchange tubes without having to use the basic equation of heat exchange $Q = kF \Delta t$, which is not applicable to the present case. The equations derived here make it possible to determine the intermediary temperatures and the amount of emitted heat corresponding to these temperatures at every

Card 1/2

MINSKER, K.S.; STUPEN', L.V.

Initiating action of some acyclic peroxides. Zhur.ob.khin, 27
no.10:2875-2877 0 '57. (MIRA 11:4)
(Peroxides) (Catalysis)

MTNSKER, K.S., Cand Chem Sci -- (diss) "Study of the
oxidation reaction of vinyl chloride. Role of oxygen
in the polymerization process." Gorkiy, 1958. 80 p. (Min of Higher Ed USSR.)
Gorkiy State Univ
im N.I. Lobachevskiy) 110 copies (KL, 23-58, 102)

- 17 -

SOV/81-59-5-17529

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, p 531 (USSR)

AUTHOR: Minsker, K.S.

TITLE: Polypropylene - a Material With Great Possibilities

PERIODICAL: Za tekhn. progress (Sovnarkhoz Gor'kovsk. ekon. adm. r-na),
1958, Nr 5, pp 6 - 8

ABSTRACT: A study is made of the properties of crystalline polypropylene (I) (the content of the amorphous fraction $\leq 10\%$), and the possible fields of its application. It is noted that I combines easily with natural and synthetic rubber, wax, polybutylene, mineral oils, etc., and can be processed in the same way as other thermoplasts. I is similar to polystyrenes and polyvinylchlorides, as to its mechanical properties. The disadvantage of I is its tendency to oxidation by O_2 and other agents at elevated temperatures. ✓

A. Vavilova

Card 1/1

AUTHORS: Shevlyakov, A.S., Minsker, K.S.

69-58-2 -19/23

TITLE: The Site of Polymerization of Unsaturated Compounds in Systems Containing Protective Colloids (O meste polimerizatsii nepredel'nykh soyedineniy v sistemakh soderzhashchikh zashchitnyye kolloidy)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol XX, Nr 2, pp 237-241 (USSR)

ABSTRACT: The polymerization of unsaturated compounds is often carried out in aqueous emulsions. The polymers prepared by this method have different degrees of dispersion and different properties depending on the protective colloid used in the process. The site of the polymerization depends on the nature of the monomer and the initiator, and in a lesser degree on the nature of the emulsifier. In this article, the problem of the site of polymerization has been investigated on water soluble monomers which have been dyed by water insoluble and non-inhibiting dyes. In case of polymerization within the monomer, it would be dyed. If polymerization takes place in the solution, the resulting polymer would be colorless. As a dye, "sudan red" was used. The experimental results show that the higher the solubility of the initiator in water, a more undyed polymer is formed. A great part of the polymerization takes place in the solution. If

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69-58-2 -19/23

The Site of Polymerization of Unsaturated Compounds in Systems Containing Protective Colloids

an initiator is used which is not soluble in the monomer and soluble in water, the reaction takes place exclusively in water and the produced polymer is colorless. Initiators partitioning between the monomer and the aqueous phase, like azodinitrile diisobutyric acid, bring about the polymerization both in the droplets of the emulsion and in the solution. If the monomer is supplied in the gaseous phase, the velocity of polymerization is considerable. This indicates the part played by the polymerization of monomers in true aqueous solutions.

There is 1 table and 11 references, 8 of which are Soviet, 2 English, and 1 German.

SUBMITTED: February 4, 1957

1. Chemical compounds--Polymerization
2. Polymers--Dispersion
3. Polymers--Properties

Card 2/2

79-28-4-30/60

AUTHORS: Razuvaev, G. A., Minsker, K. S.

TITLE: Polymeric Chlorovinylperoxide (Polimernaya perekis' khloristogo vinila)

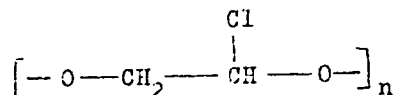
PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 4, pp. 983-991 (USSR)

ABSTRACT: In the present paper the authors have separated the polymeric chlorovinylperoxide compounds and determined their structure. Moreover they have investigated their properties, their reactivity as well as their influence on the quality and properties of the polymer. Because of the instability of these compounds and because of the difficulty of obtaining a sufficient quantity (all operations were carried out with some dozens of milligrams separately produced for each experiment) it was not possible to separate the precipitated chlorovinylperoxide. It can be assumed that during the oxidation of the chlorovinyl the development of the polymeric peroxide takes place at the expense of the copolymerization process of the chlorovinyl with oxygen. The formula for the ideal 1 : 1 copolymer of the oxygen and of the chlorovinyl must be

Card 1/4

79-28-4-30/60

Polymeric Chlorovinylperoxide



It is easy to compute that in the weighed portion of the polyperoxide 33,86 % of oxygen and 37,59 % of chlorine must be contained. Ratio % O/% Cl = 0,903. As the polymeric chlorovinylperoxide was neither purified nor recrystallized, it can be assumed that the respective compound probably has a 1 : 1 structure with regular alternation of the bonds ($-CH_2CHClOO-$). The infrared spectrum of chlorovinylperoxide in the carbon tetrachloride solution showed an intense and wide adsorption band at 883 cm^{-1} of the indispensable $-O-O-$ bond, which is characterized for peroxide compounds, as well as a strong adsorption band at 1080 cm^{-1} , which can have developed because of the presence of $-C-O-O-$ groups. The extraordinary mobility of the chlorine atoms in chlorovinylperoxide must be emphasized. During the hydrolysis chlorine already at low temperatures splits off from the polymeric molecule (Figure 1). Experiments with the initiation of the polymerization of different monomers with polymeric chloro-

Card 2/4

79-28-4-30/60

Polymeric Chlorovinylperoxide

vinylperoxide have shown that they cause the polymerization of styrene, vinylidene chloride, chlorovinyl, butylacrylate and methacrylic acid. The facts that were obtained during the investigation of the properties of the polyvinyl chloride in the initiation by polymeric chlorovinylperoxide imply the presence of a peculiar block polymer. One part of the latter has a polyperoxide structure and the other has the structure of a real polymer. Thus during the polymerization of the chlorovinyl, the molecular oxygen has apart from an intense inhibiting effect also a negative effect on the quality of the developing polymer. This polymer has a lower decomposition temperature and a lower molecular weight than a polymer produced by ordinary initiators. The diminution of pH in the reaction medium during the suspended polymerization of the chlorovinyl can be conditioned by the presence of the molecular oxygen-owing to the hydrolysis of the polymeric peroxides, developing during the induction period.

Card 3/4

79-28-4-30/60

Polymeric Chlorovinylperoxide

The authors credit A.I. Finkel'shteyn with having made the spectroscopic analysis of the polymeric peroxide. There are 2 figures, 2 tables, and 28 references, 11 of which are Soviet.

SUBMITTED: December 15, 1957

Card 4/4

5(1)

AUTHORS:

Shevlyakov, A. S., Etlis, V. S., SOV/20-122-6-34/49
~~Minsker, K. S., Degtyareva, L. M., Fedoseyeva, G. T.,~~
 Kucherenko, M. M.

TITLE:

Preparation of Isotactic Polystyrene (Polucheniye
 izotakticheskogo polistirola)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 6,
 pp 1076-1078 (USSR)

ABSTRACT:

In spite of several papers (Refs 1-3) the preparation method and the parameter of isotactic polystyrene are not described in publications. The present paper tries to determine the conditions of stereospecific styrene polymerization which are suited for technological development. The styrene polymerization was produced with a catalytic system of triethyl aluminium titanium trichloride in the medium of saturated hydrocarbons at 30-120° in a nitrogen atmosphere. A dependence of the polymerization velocity and the yield of isotactic fraction of the polymer on the concentration of $Al(C_2H_5)_3$ in the solvent (benzine) was found (Table 1). Figure 1 shows the dependence of the yield of the isotactic fraction (fraction III.), of the per cent content of the

Card 1/3

Production of Isotactic Polystyrene

SOV/20-122-6-34/49

amorphous fraction in the polymer (1st fraction), of the characteristic viscosity (in cyclohexanone at 20°) and of the density (ρ) on the quantity K. Figure 2 shows the yield of the isotactic and amorphous fraction in the polymer in dependence on temperature. An increase in the entire yield of polystyrene takes place only in consequence of an increase in the yield of the amorphous fraction. When the relation $C_8H_8 : TiCl_3$ was raised from 10 to 15, the content of the amorphous fraction in the polymer increased by 1.5-2.0 times. The yield of the isotactic fraction per $TiCl_3$ -unit practically did not change. The results of typical tests are collected in table 2. Obviously the formation of the amorphous product is not connected with surface effects and takes place in a homogeneous solution according to the ion mechanism. The constant yield of an isotactic product, however, must be explained by the constant size of the active surface of the catalyst. Polystyrene can be **prepared** according to the system described, depending on the conditions of the procedure and the polymerization method either as a completely crystalline substance (98.5-100 %) or with a considerable content of the

Card 2/3

Production of Isotactic Polystyrene

SOV/20-122-6-34/49

amorphous fraction. Figure 3 shows typical thermodynamic curves (plotted with Kargin's scales) of an industrial sample, of the polymer **prepared** according to the catalytic system mentioned above, and of its individual fractions. Figure 4 gives the radiographs of both fractions. Table 3 shows some physico-mechanic and electric properties of the polystyrene under consideration. V. A. Kargin, Member, Academy of Sciences, USSR assisted the author in his work. There are 3 figures, 3 tables, and 3 references.

PRESENTED: June 27, 1958, by V. A. Kargin, Academician
SUBMITTED: June 26, 1958

Card 3/3

5(3)
 AUTHORS: Minsker, K. S., Etlis, V. S. SOV/20-123-6-23/50
 TITLE: Chlorinated Polypropylenes (Khlorigovannye polipropileny)
 PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6,
 pp 1041 - 1043 (USSR)
 ABSTRACT: The conditions of synthesis and the properties of the products according to the chlorine content in the polymer were not indicated in reference 1 for the substance resulting from the interaction of chlorine and crystalline polypropylene. Therefore, the authors have thoroughly studied the process of chlorination of polypropylene on the catalytic system $Al(C_2H_5)_3$ and $TiCl_4$ (I) as well as on $Al(C_2H_5)_3 | TiCl_3$ contact (II). The chlorination was carried out in a chloro benzene medium either in the presence of initiators (radical-producers) or without them. In the first case every hour 0.28 g each of azoisobutyric acid-dinitrile (or of some other radical-producer) were added. Figure 1 shows the chlorination kinetics of the polypropylene (I) and (II) with initiators (Curves 2 and 1, respectively) and of (I) without initiator (Curve 3). The

Card 1/3

Chlorinated Polypropylenes

SOV/20-123-6-23/50

initiator especially accelerates the process, if polypropylene contains much of the isotactic fraction. The author failed to obtain an elementary composition $(C_3H_3Cl_3)_n$ even in the case of a long-lasting chlorination. The chlorine introduction into the polymer causes considerable variations in the latter. After the formation of a polymer $(C_3H_5Cl)_n$ a non-combustible powder finally results. With an increasing chlorine content the solubility of the polypropylene increases, the viscosity decreases, whereas the density increases as well (Figs 3,2). All of the samples formed were amorphous which was proved electro-nographically. The decrease in viscosity suggests a bursting (destruction) of the polymer chain on the C-C bond. From the increase in density it can be assumed that after the introduction of 30 - 35% of chlorine both polymers show structures resembling each other whereas the common structure of the initial polymers considerably differed by the content of the amorphous and isotactic fraction. Figure 3 shows the variation of the softening temperature of the chlorinated polypropylenes according to the chlorine content. If this content is low,

Card 2/3

Chlorinated Polypropylenes

SOV/20-123-6-23/50

the temperature falls. On a further chlorine introduction into the molecule of the polymer it increases and reaches up to 200° and even more at 65-66% (Figs 3,1). The authors tried to interpret this phenomenon by structural peculiarities as well as by the chlorine position. There are 4 figures and 1 reference.

PRESENTED: May 16, 1958, by V. A. Kargin, Academician

SUBMITTED: May 9, 1958

Card 3/3

SOV/80-59-1-41/44

AUTHORS: Flid, R.M., Minsker, K.S. and Skvortsova, E.F.

TITLE: Production of Methyl Chloride by the Catalytic Hydrochlorination of Dimethyl Ester (Polucheniye khloristogo metila kataliticheskim gidrokhlorirovaniyem dimetilovogo efira)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 230-233 (USSR)

ABSTRACT: The dimethyl ester is formed as a by-product in a number of technological processes, and this raises the problem of its effective utilization. The authors show that it can be used for obtaining methyl chloride in its catalytic interaction with hydrogen chloride. The most active catalyzers are γ - Al_2O_3 (375 to 400°C); CdCl_2 on the activated carbon AR-3 (275 to 300°C) and ZnCl_2 on the activated carbon AR-3 (120 to 200°C). At the volume velocity of 300 to 400 l/l cat.hr the yield of CH_3Cl attains the following values: 95 to 96%; 85 to 97% and 78 to 82% respectively. A preliminary saturation of the catalyzer surface with hydrogen chloride is necessary for the main-

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SOV/80-59-1-41/44

Production of Methyl Chloride by the Catalytic Hydrochlorination of Dimethyl
Ester

tenance of high activity of the process.
There are 2 tables and 2 Soviet references.

SUBMITTED: May 13, 1957

Card 2/2

TELIS, V.S.; MINSKER, K.S.; RYLOV, Ye.Ye.; BORT, D.N.

Crystalline poly(vinyl chloride). Vysokom. soed. 1 no.9:1403-1406
S '59. (MIRA 13:3)

(Ethylene)

RAZUVAYEV, G.A.; MINSKER, K.S.; FEDOSEYEVA, G.T.; SAVEL'YEV, L.A.

Effect of amines on the stereospecific polymerization of propylene.
Vysokom.sped. 1 no.11:1691-1695 N '59. (MIRA 13:5)
(Propene) (Amines)

SOV/80-32-2-33/56

AUTHORS: Etlis, V.S., Minsker, K.S., Kirillov, A.I., Kucherenko, M.M.

TITLE: On the Production and the Properties of Polypropylene (O poluchenii i svoystvakh polipropilena)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2, pp 418-423 (USSR)

ABSTRACT: Polypropylene was prepared on catalysts containing a mixture of triethylaluminum (AlEt_3) and the chlorides of titanium (TiCl_4 and TiCl_3). The polymer was obtained in the quantity of 0.5 - 1.0 kg from 1 liter of the reaction mass in the presence of TiCl_4 as a catalyst. The average molecular weight was 23,000 - 24,000. The content of the amorphous polymer in the final product was 25 - 35%. If AlEt_3 with TiCl_3 was used as catalyst the polymer was in crystalline form. The Staudinger equation [Ref 7] is valid for all propylene solutions.

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On the Production and the Properties of Polypropylene

SOV/80-32-2-33/56

There are 3 tables, 2 graphs, 1 diagram, and 8 references,
4 of which are Soviet, 3 English, and 1 German.

SUBMITTED: June 17, 1957

Card 2/2

OVCHINNIKOV, Yu.V.; MINSKER, K.S.; IGONIN, L.A.

Effect of pressures on the cohesion of polypropylene. Vysokom.
soed. 2 no.2:306-309 '60. (MIRA 13:11)
(Propene) (Polymers)

81583

S/190/60/002/05/05/0.4
B020/B066

5.3831
AUTHORS:

Razuvayev, G. A., Minsker, K. S., Fedoseyeva, G. T.,
Bykhovskiy, V. K.

TITLE:

Effect of Polar Additions on the Stereospecific
Polymerization of Propylene

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 3,
pp. 404-407

TEXT: The authors have recently shown that the addition of amines in the stereospecific polymerization and in the presence of a catalyst system (consisting of titanium chloride and triethyl aluminum) changes the degree of polymerization of polymers. The ratio of the fractions is not considerably influenced. The effect of other types of nucleophilic compounds containing an undivided electron pair that may interact both with the unoccupied 3-p level of the central Al atom in triethyl aluminum and with the d-shell of $TiCl_3$ is of special interest in this connection. It was presupposed that these compounds, like the amines

Card 1/3

Effect of Polar Additions on the
Stereospecific Polymerization of Propylene

81583

S/190/60/000/00/00/00

B020/B066

(Ref. 1), exert an influence upon the ratio of the reaction of growth to the interruption of the chain. Representatives of the class of ethers (dioxane), sulfides (diphenyl sulfide), and of the heterocyclic compounds (pyridine, thianthrene) were selected. The results of experiments on the effect of these compounds on the stereospecific polymerization of propylene are given (Table). With an increasing ratio between addition and titanium chloride also the molecular weight of the polymer increases as much as on application of amines. The maximum molecular weight found in dioxane with a ratio of < 1 between addition and titanium chloride is to be explained by the presence of two electron donor atoms in its molecule. Dioxane and pyridine accelerated stereospecific polymerization, which had not been expected by the authors (Fig.). The authors outlined (Ref. 1) the possibility of the formation of complex compounds between $TiCl_3$ and aniline, dimethyl aniline, and triethyl aniline in the presence or absence of triethyl aluminum. This may also be compared with the effect of the increasing molecular weight of the resultant polymer on polymerization of the Ziegler type and in the presence of ether additions. T. A. Domracheva

Card 2/3

Effect of Polar Additions on the
Stereospecific Polymerization of Propylene

81583

S/190/60/002/05/05/014
B020/B066

contributed to the experimental part. Mention is made of C. D. Nenițescu (Ref. 3), A. V. Topchiyev and co-workers (Refs. 4,5), V. Michovich and M. Mikhaylovich (Ref. 12), T. V. Talalayeva and K. A. Kocheshkov (Ref. 8). There are 1 figure, 1 table, and 19 references: 10 Soviet, 8 US, 2 German, and 1 Rumanian. W

SUBMITTED: December 11, 1959

Card 3/3

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2109, 2209, 1372

1156 only

S/190/60/002/004/010/020
B004/B056

AUTHORS: Bykhovskiy, V. K., Minsker, K. S.

TITLE: The Part Played by Electron Defects of the Surface in
Heterogeneous Catalytic Polymerization. I. Polymerization
of the Alfin Type

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 4,
pp. 529-534

TEXT: The authors aimed at interpreting the mechanism of polymerization in the presence of heterogeneous catalysts. In the present paper, the Alfin system (Refs. 1 and 2) (combination of alkyl chloride, secondary alcohol, alkali metal, and olefin) is investigated. The authors point out that the presence of alkali halide is important for polymerization of this type, which is not explained by the interpretations given hitherto of the process (Refs. 3-5). Proceeding from the data on the activity of colored alkali halides (Refs. 7-12), they assume that in the lattice of the alkali-halide crystal alkali atoms appear as impurities.

Card 1/3

84509

S/190/60/002/004/010/020
B004/B056

The Part Played by Electron Defects of the
Surface in Heterogeneous Catalytic .
Polymerization. I. Polymerization of the
Alfin Type

which ionize the lattice. In this way anion vacancies are produced, on which free electrons concentrate. These defects, which are described as color centers (F-centers) activate the accumulation reaction by weakening the π -bond of the monomer (Fig. 1). The Wurtz reaction $\dot{M} + RX \longrightarrow M^+X^- + M^+R^-$ demonstrates that the M^+ is adsorbed in the lattice, the carbanion R^- is localized on the anion vacancy, and forms an U' -center (according to Seitz, Refs. 8 and 9) (Fig. 2). The experimental ionization energy of F-centers is given in a Table for various alkali halides. Herefrom it follows that F-centers are stronger electron donors than the alkali metals themselves. Further, it is shown on the basis of Ref. 19 that the formation of stereo-regular polymers by means of Alfin catalysts depends on the presence of a solid phase, and that, by the addition of reagents that dissolve alkali halides or form complex compounds with them, amorphous polymers are produced. For the further clarification of this problem, the authors suggest the investigation of the optical and magnetic properties of colored halide crystals and of

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The Part Played by Electron Defects of the
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B004/B056

the effect of irradiation of such crystals. They thank G. A. Razuvayev,
T. K. Rebanya, V. A. Kabanov, and A. A. Arest-Yakubovich for assistance
and discussions. They mention a paper by S. Z. Roginskiy (Ref. 7). There
are 2 figures, 1 table, and 21 references: 5 Soviet, 12 US, 2 British,
and 2 German.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
(Physicochemical Institute imeni L. Ya. Karpov)

SUBMITTED: December 31, 1959

Card 3/3

84510

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S/190/60/002/004/011/020
B004/B056AUTHORS: Minsker, K. S., Bykhovskiy, V. K.TITLE: The Part Played by Electron Defects of the Surface in
Heterogeneous Catalytic Polymerization. II. Systems of
Catalysts of the Type Ziegler-Natta //PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 4,
pp. 535-540

TEXT: The authors aimed at interpreting the mechanism of polymerization⁷
in the presence of heterogeneous catalysts. They assume that the catalytic
activity of Ziegler and Natta catalysts depends upon the presence of
doped crystals. These have electron defects of the type of a color center
(F-center) on their surface. The appearance of such defects is
illustrated by the chemical sorption of trialkyl aluminum on the ion
lattice of $TiCl_3$ into which the cation Al^+R_2 is built. The positive
charge causes an anion vacancy (hole), on which the carbanion R^- is
localized (U'-center). If the crystal already has electron defects, or if

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such defects are caused by irradiation, the chemical sorption of the metal alkyl will be facilitated. If a monomer with π -electrons approaches the R^- localized on the hole, the π -bond will be loosened under the action of an anion electron, and a σ -bond between anion and monomer may be produced. This interaction occurs with the participation of the loosening molecular orbits of the monomer and the corresponding orbits of the electron defect. The original anion becomes the end group; a new R^- - localized on the defect forms, which now has an extended carbon chain. On the basis of these assumptions, the authors give an interpretation of the polymerization mechanism with Ziegler and Natta catalysts. They thank G. A. Razuvaev, T. K. Rebanya, V. A. Kabanov, and A. A. Arest-Yakubovich for assistance and discussions. There are 31 references: 13 Soviet, 9 US, 2 British, 1 Belgian, 1 French, 3 German, and 1 Italian. X

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The Part Played by Electron Defects of the
Surface in Heterogeneous Catalytic
Polymerization. II. Systems of Catalysts of the
Type Ziegler-Natta

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B004/B056

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
(Institute of Physics and Chemistry imeni L. Ya. Karpov)

SUBMITTED: December 31, 1959

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86298

S/190/60/002/008/012/017
B004/B054

15.8102

1203

AUTHORS: Razuvaev, G. A., Minsker, K. S.

TITLE: The Role of Oxygen in the Polymerization of Vinylidene Chloride

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 8, pp. 1239-1245

TEXT: The present paper reports on a study of polymerization of vinylidene chloride in the presence of 95% molecular oxygen. Whereas in previous papers (Refs. 1,2) it was found that vinyl chloride reacted with O_2 only slowly and only in the presence of initiators (benzoyl peroxide, azoisobutyric acid dinitrile), vinylidene chloride reacted very easily with O_2 to form peroxides, the initiators having no influence on the reaction rate up to $30^\circ C$. Vinylidene chloride peroxides are sparingly soluble in their own monomers. Normal polymerization of vinylidene chloride only starts when the oxygen is consumed, the latter acting as inhibitor. Although no free HCl was found in the gaseous phase, the molar ratio $Cl : -OO-$ rose from 1 to 4 during the reaction. The peroxide groups are
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The Role of Oxygen in the Polymerization
of Vinylidene Chloride

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probably decomposed. If HCl is formed, it remains dissolved in the liquid phase. If the monomer excess was removed in the air flow after the reaction with O₂, a solid substance was left which contained 1.49-11.2% of peroxide oxygen² and exploded at a content of more than 7% of peroxide oxygen between 86 and 98°C. The composition of the vinylidene chloride peroxide varied so that its formula could only be determined approximately: $3C_2H_2Cl_2O_2 - HCl$

loss. Peroxides with high oxygen content accelerated the polymerization of vinyl chloride. On heating in water, a fast hydrolysis occurred with HCl becoming free. The peroxide of vinylidene chloride poorly dissolves in organic solvents, best in dioxane. The action of amines or dimethyl formamide leads to explosion. The formation rate of the peroxide group during the induction period of polymerization of vinylidene chloride in the presence of air, as well as in the presence or absence of initiators, depends linearly on temperature. An activation energy $E = 9.8$ kcal/mole was found for the non-initiated oxidation, whereas E was 38.5 kcal/mole in the case of initiation by azoisobutyric acid dinitrile. The cause of this difference has not yet been found. -C-O-, -O-O-, and C=C groups were detected with the aid of infrared spectra of the polymer. The authors thank A. M. Fisher for

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taking the spectra. They arrived at the conclusion that oxygen deteriorated the quality and stability of plastics made of vinylidene chloride. There are 5 figures, 2 tables, and 7 references: 4 Soviet, 1 US, and 2 Japanese.

SUBMITTED: April 4, 1960

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S/629/60/000/003/002/011
D202/D305

AUTHORS: Minsker, K. S., and Etlis, V. S.

TITLE: The mechanism of stereospecific polymerization

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleeva. Uspekhi khimii i tekhnologii polimerov, sb. 3, Moscow, Goskhimizdat, 1960, 14-38

TEXT: A critical review of theories concerning the formation of stereoregular polymers, based largely on Western work. Many examples of stereospecific polymerization reactions with different catalysts are given and discussed. It is concluded that the question of the polymerization mechanism cannot be regarded as settled, although a number of fundamental conditions for its realization have been determined: a) The presence of a solid surface, capable of forming complexes with the components of the reacting system; b) formation of intermediate complexes on the surface of the catalyst which increase the probability of the formation of molecular configurations desirable and necessary for stereospecific

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polymerization; c) the location of polymerizing molecules between the metal-carbon bond and the initially bound atoms of the carbon chain. It is also pointed out that during this type of polymerization the formation of both crystalline and amorphous polymers always occurs. It is, therefore, possible that the mechanism of formation is different for both processes. Despite the present lack of an unanimous opinion concerning the mechanism of stereospecific polymerization, the authors believe that owing to the great number of published experimental data and theoretical consideration this question would be fully elucidated in the nearest future. There are 71 references: 16 Soviet-bloc and 55 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: G. Natta, J. Inorg. and Nuclear Chem., 8, 589, (1958); K. Fukui, T. Kagiya, T. Yagi, T. Shimidzu and S. Ykasa, J. Polymer. Sci., 37, 353, (1959); J. Furukawa and T. Tsuruta, J. Polymer. Sci., 36, 275, (1959); T. Fox, B. Garret, W. Goode, S. Oratch, J. Kincaid, A. Spell and T. Stroupe, J. Am. Chem. Soc., 80, 1780, (1958). ✓

Card 2/2

MINSKER, K.S.

AUTHORS:

Razuvaev, G. A., Grayevskiy, A. I., Demin, O. I. Minsker
K. S., Sukharev, Yu. G.

S/081/61/000/024/031/086
B117/B147

TITLE:

Oxidation of triethyl aluminum and study of the catalytic
properties of the oxidation products

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 24, 1961, 240, abstract
242h196 (Tr. po khimii i khim. tekhnol. (Gor'kiy), no. 3,
1960, 373 - 380)

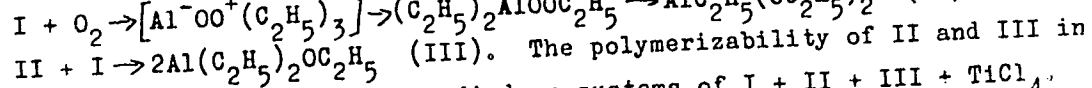
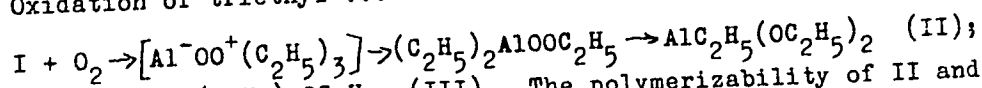
TEXT:

The oxidation of solutions of $Al(C_2H_5)_3$ (I) and its derivatives in
n-heptane has been studied at various temperatures and concentrations.
Reaction products were analyzed as to their content of peroxide compounds
and their decomposition products. Peroxide compounds with an amount in-
creasing with decreasing concentration of the solution and decreasing re-
action temperature are very unstable. At $20^\circ C$ they decompose in very weak
solutions almost immediately to give oxy derivatives of I. The following
oxidation pattern of I is proposed:

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Oxidation of triethyl ...



the case of α -olefins was studied on systems of $I + II + III + TiCl_4$.

Oxidation products of I and of its derivatives are ordinary catalysts of the Ziegler type but much less reactive. When they are added to I, the quality of the resulting polymer is not deteriorated, but the catalytic activity of I and the molecular weight of the polymer are lowered. In order to eliminate the detrimental effect of the admixture, it is recommended that the total concentration of the $TiCl_4/RAl$ catalyst and the ratio of C_2H_5 to Ti should be increased at the same time. [Abstracter's note: Complete translation.]

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S/064/60/000/005/003/009
B015/B058

AUTHORS: Shevlyakov, A. S., Etlis, V. S., Minsker, K. S.,
Degtyareva, L. M., Fedoseyeva, G. T., Kucherenko, M. M.

TITLE: Stereospecific Polymerization¹ of Styrene[^]

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 5, pp. 10 - 15

TEXT: In the paper under review, details on the stereospecific polymerization of styrene are discussed and experimental results are mentioned in connection with a previous report (Ref. 11) on the production of isotactic polystyrene by means of a catalytic system consisting of triethyl aluminum and $TiCl_3$. The α -form of $TiCl_3$, showing a high stereospecificity, was used in the experiments. It was established that the yield of styrene isomers (of the amorphous and isotactic fractions) depends on the dilution of the reaction mixture (Table 1) and work was conducted with a concentration of from 7 to 10% triethyl aluminum. Reducing the relative amount of triethyl aluminum impairs the stereospecificity and increases the yield of the amorphous product. An increase

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